

CLAIMS

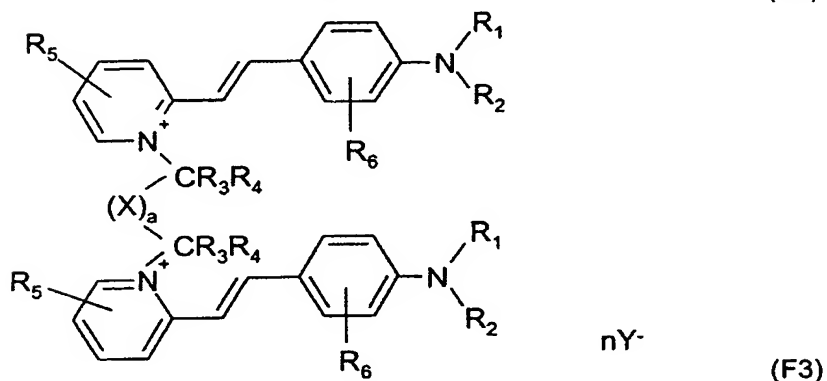
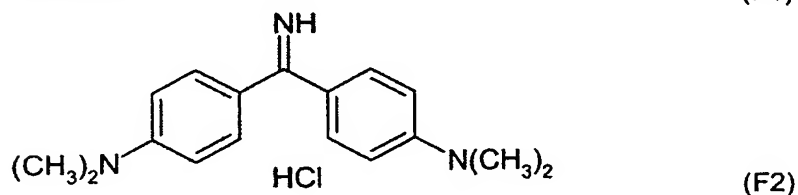
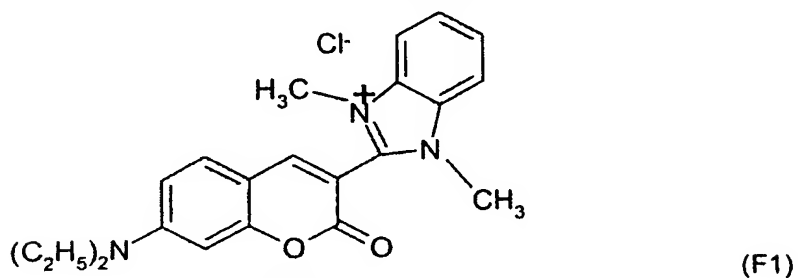
1. Composition, characterized in that it comprises, in a cosmetically acceptable medium, at least one fluorescent dye that is soluble in the said medium and at least one complexing agent chosen from hydroxycarboxylic acids and polycarboxylic acids, and the monovalent or divalent alkali metal, alkaline-earth metal, transition metal, organic amine or ammonium salts thereof, alone or as mixtures; the composition not comprising, as fluorescent agent, 2-[2-(4-dialkyl-amino)phenylethenyl]-1-alkylpyridinium in which the alkyl radical of the pyridinium nucleus represents a methyl or ethyl radical and that of the benzene nucleus represents a methyl radical, and in which the counterion is a halide.

2. Composition according to any one of the preceding claims, characterized in that the fluorescent dye leads to a reflectance maximum that is in the wavelength range from 500 to 650 nanometres and preferably in the wavelength range from 550 to 620 nanometres.

3. Composition according to either of the preceding claims, characterized in that the fluorescent dye is chosen from the fluorescent compounds belonging to the following families: naphthalimides; cationic or non-cationic coumarins; xanthenodiquinolizines; azaxanthenes; naphtholactams; azlactones; oxazines; thiazines; dioxazines; polycationic fluorescent dyes of

azo, azomethine or methine type, alone or as mixtures.

4. Composition according to any one of the preceding claims, characterized in that the fluorescent compound has the following formula:



5

in which:

R_1 and R_2 , which may be identical or different, represent:

- a hydrogen atom;
- a linear or branched alkyl radical containing 1 to 10 carbon atoms and preferably from 1 to 4 carbon atoms, optionally interrupted and/or substituted with at least one hetero atom and/or group containing at least one hetero

10

atom and/or substituted with at least one halogen atom;

- an aryl or arylalkyl radical, the aryl group containing 6 carbon atoms and the alkyl radical containing 1 to 4 carbon atoms; the aryl radical optionally being substituted with one or more linear or branched alkyl radicals containing 1 to 4 carbon atoms optionally interrupted and/or substituted with at least one hetero atom and/or group containing at least one hetero atom and/or substituted with at least one halogen atom;
- R_1 and R_2 may optionally be linked so as to form a heterocycle with the nitrogen atom and may contain one or more other hetero atoms, the heterocycle optionally being substituted with at least one linear or branched alkyl radical preferably containing from 1 to 4 carbon atoms and optionally being interrupted and/or substituted with at least one hetero atom and/or group containing at least one hetero atom and/or substituted with at least one halogen atom;
- R_1 or R_2 may optionally be engaged in a heterocycle containing the nitrogen atom and one of the carbon atoms of the phenyl group bearing the said nitrogen atom;

R_3 and R_4 , which may be identical or different,

represent a hydrogen atom or an alkyl radical containing 1 to 4 carbon atoms;

R₅, which may be identical or different, represent a hydrogen atom, a halogen atom or a linear or branched
5 alkyl radical containing 1 to 4 carbon atoms, optionally interrupted with at least one hetero atom;

R₆, which may be identical or different, represent a hydrogen atom; a halogen atom; a linear or branched alkyl radical containing 1 to 4 carbon atoms,
10 optionally substituted and/or interrupted with at least one hetero atom and/or group bearing at least one hetero atom and/or substituted with at least one halogen atom;

X represents:

- 15 • a linear or branched alkyl radical containing 1 to 14 carbon atoms or an alkenyl radical containing 2 to 14 carbon atoms, optionally interrupted and/or substituted with at least one hetero atom and/or group containing at
20 least one hetero atom and/or substituted with at least one halogen atom;
- a 5- or 6-membered heterocyclic radical optionally substituted with at least one linear or branched alkyl radical containing 1
25 to 14 carbon atoms, optionally substituted with at least one hetero atom; with at least one linear or branched aminoalkyl radical containing 1 to 4 carbon atoms, optionally

substituted with at least one hetero atom;
with at least one halogen atom;

- a fused or non-fused aromatic or diaromatic radical, optionally separated with an alkyl radical containing 1 to 4 carbon atoms, the aryl radical(s) optionally being substituted with at least one halogen atom or with at least one alkyl radical containing 1 to 10 carbon atoms optionally substituted and/or interrupted with at least one hetero atom and/or group bearing at least one hetero atom;
- a dicarbonyl radical;
- the group X possibly bearing one or more cationic charges;

a being equal to 0 or 1;

Y^- , which may be identical or different, representing an organic or inorganic anion;

n being an integer at least equal to 2 and at most equal to the number of cationic charges present in the fluorescent compound.

5. Composition according to any one of the preceding claims, characterized in that the fluorescent dye(s) is(are) present in a ponderal concentration of between 0.01% and 20% by weight, more particularly between 0.05% and 10% by weight and preferably between 0.1% and 5% by weight relative to the total weight of the composition.

6. Composition according to any one of the preceding claims, characterized in that the sequestering agent of hydroxycarboxylic type corresponds to the following formula (A): $R-(\text{CHOH})_4-\text{CO}_2\text{X}$, in which R represents a CH_2OH or CO_2X group and X represents a hydrogen or a monovalent or divalent cation.

7. Composition according to the preceding claims, characterized in that the sequestering agent is chosen from gluconic acid, mucic acid, glucaric acid and mannaric acid, and their salts and mixtures.

8. Composition according to any one of Claims 1 to 5, characterized in that the sequestering agent of polycarboxylic type corresponds to the following formula (B): $R-N(Y)(\text{CH}(R')\text{CO}_2\text{X})$, in which Y represents a hydrogen atom or a group $\text{CH}(R')\text{CO}_2\text{X}$; R represents a hydrogen atom or a group (a) $-\text{CH}(\text{CO}_2\text{X})-(\text{CH}_2)_n\text{CO}_2\text{X}$, (b) $-(\text{CH}_2)_n\text{OH}$, (c) $-\text{CH}(R'')\text{CO}_2\text{X}$, (d) $-(\text{CH}_2)_n-\text{N}(\text{COR}'')-\text{CH}_2\text{CO}_2\text{X}$, (e) $-(\text{CH}_2)_n-\text{N}(\text{CH}_2\text{CO}_2\text{X})\text{CH}_2\text{CO}_2\text{X}$ and (f) $-(\text{CH}_2)_n\text{NH}-\text{CH}(\text{CO}_2\text{X})\text{CH}_2\text{CO}_2\text{X}$, in which R' represents a hydrogen atom or a group $\text{CH}_2\text{CO}_2\text{X}$; R'' represents a linear or branched $\text{C}_1\text{-C}_{30}$ or cyclic $\text{C}_3\text{-C}_{30}$ alkyl group, n is an integer between 1 and 5 and is preferably equal to 2, and X represents a hydrogen atom or a monovalent or divalent cation.

9. Composition according to the preceding claim, characterized in that the sequestering agent is chosen from:

- compounds containing four carboxylic acid or carboxylic salt functions, when R represents a hydrogen atom and R' represents a group $-\text{CH}_2-\text{CO}_2\text{X}$, or when R represents a group $-\text{CH}(\text{CO}_2\text{X})-(\text{CH}_2)_2-\text{CO}_2\text{X}$ and R' represents a hydrogen atom;
5
- compounds containing three carboxylic acid or carboxylic salt functions, when R represents the group $-\text{CH}(\text{CH}_3)-\text{CO}_2\text{X}$ and R' represents a hydrogen atom, or when R represents a group $-(\text{CH}_2)_2-\text{N}(-\text{COR}'')$ -
10 $\text{CH}_2-\text{CO}_2\text{X}$ and R' represents a hydrogen atom.

10. Composition according to either of Claims 8 and 9, characterized in that the sequestering agent is chosen from methylglycinediacetic acid, N-lauroyl-ethylenediamine-N,N',N'-triacetic acid,
15 iminodisuccinic acid, N,N-dicarboxymethyl-L-glutamic acid, ethylenediamine-N,N'-disuccinic acid, and their salts and mixtures.

11. Composition according to one of the preceding claims, characterized in that the content of
20 sequestering agent represents 0.0001% to 20% by weight relative to the weight of the composition, more particularly between 0.001% and 10% by weight relative to the weight of the composition and preferably between 0.01% and 5% by weight relative to the weight of the
25 composition.

12. Composition according to one of the preceding claims, characterized in that it comprises at least one nonionic, anionic or amphoteric surfactant.

13. Composition according to the preceding claim, characterized in that the surfactant content represents 0.01% to 30% by weight relative to the total weight of the composition.

5 14. Composition, characterized in that it comprises the composition according to one of Claims 1 to 13, and at least one oxidizing agent.

15 15. Composition according to the preceding claim, characterized in that the oxidizing agent is
10 chosen from hydrogen peroxide, urea peroxide, alkali metal bromates, persalts such as perborates and persulphates, and enzymes such as peroxidases and two-electron or four-electron oxidoreductases, and preferably hydrogen peroxide.

15 16. Process for dyeing human keratin fibres with a lightening effect, characterized in that the following steps are performed:

- a) a composition as defined according to any one of Claims 1 to 15 is applied to the said fibres, for
20 a time that is sufficient to develop the desired coloration and lightening,
- b) the fibres are optionally rinsed,
- c) the fibres are optionally washed with shampoo and rinsed,
- 25 d) the fibres are dried or are left to dry.

17. Process according to Claim 16, characterized in that it comprises a preliminary step that consists in separately storing, on the one hand, a

composition according to one of Claims 1 to 13, and, on the other hand, a composition containing, in a cosmetically acceptable medium, at least one oxidizing agent, and then in mixing them together at the time of use, followed by applying this mixture to the fibres for a time that is sufficient to develop the desired coloration, after which the fibres are rinsed, washed optionally with shampoo, rinsed again and dried.

18. Process according to either of Claims 16 and 17, characterized in that the composition is applied to hair with a tone height of less than or equal to 6 and preferably less than or equal to 4.

19. Process according to one of Claims 16 to 18, characterized in that the human keratin fibres are artificially dyed or pigmented.

20. Process for colouring coloured skin with a lightening effect, characterized in that a composition according to any one of Claims 1 to 13 is applied to the skin and the skin is then dried or is left to dry.

21. Multi-compartment device for dyeing and lightening keratin fibres, comprising at least one compartment containing a composition according to one of Claims 1 to 13, and at least one other compartment containing a composition containing at least one oxidizing agent.

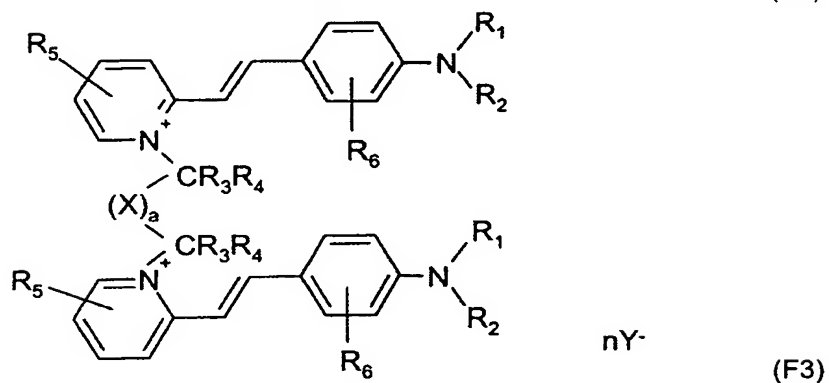
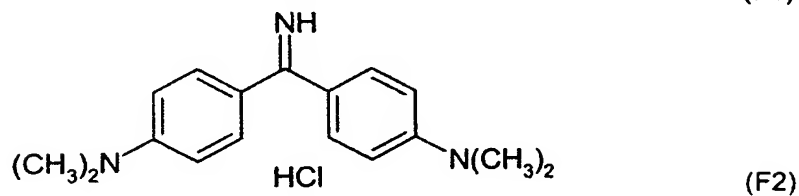
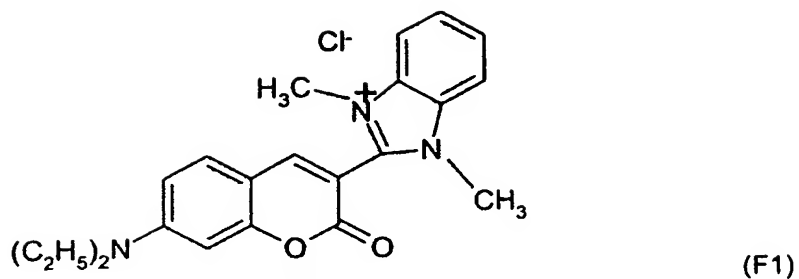
22. Use, for dyeing keratin materials with a lightening effect, of a composition comprising, in a

cosmetically acceptable medium, at least one fluorescent dye that is soluble in the said medium, and at least one complexing agent chosen from hydroxycarboxylic acids and polycarboxylic acids, and
5 the monovalent or divalent alkali metal, alkaline-earth metal, transition metal, organic amine or ammonium salts thereof, alone or as mixtures.

23. Use according to the preceding claim, characterized in that the fluorescent dye leads to a
10 reflectance maximum that is in the wavelength range from 500 to 650 nanometres and preferably in the wavelength range from 550 to 620 nanometres.

24. Use according to either of Claims 22 and 23, characterized in that the fluorescent dye is
15 chosen from the fluorescent compounds belonging to the following families: naphthalimides; cationic or non-cationic coumarins; xanthenodiquinolizines; azaxanthenes; naphtholactams; azlactones; oxazines; thiazines; dioxazines; monocationic or polycationic
20 fluorescent dyes of azo, azomethine or methine type, alone or as mixtures.

25. Use according to any one of Claims 22 to 24, characterized in that the fluorescent dye is chosen from the group formed by dyes having the
25 following structures:



in which:

R_1 and R_2 , which may be identical or different, represent:

- 5 • a hydrogen atom;
- a linear or branched alkyl radical containing 1 to 10 carbon atoms and preferably from 1 to 4 carbon atoms, optionally interrupted and/or substituted with at least one hetero atom and/or group comprising at least one hetero atom and/or substituted with at least one halogen atom;
- 10 • an aryl or arylalkyl radical, the aryl group containing 6 carbon atoms and the alkyl

- radical containing 1 to 4 carbon atoms; the aryl radical optionally being substituted with one or more linear or branched alkyl radicals containing 1 to 4 carbon atoms optionally interrupted and/or substituted with at least one hetero atom and/or group containing at least one hetero atom and/or substituted with at least one halogen atom;
- 5
- R_1 and R_2 may optionally be linked so as to form a heterocycle with the nitrogen atom and may contain one or more other hetero atoms, the heterocycle optionally being substituted with at least one linear or branched alkyl radical preferably containing from 1 to 4 carbon atoms and optionally being interrupted and/or substituted with at least one hetero atom and/or group containing at least one hetero atom and/or substituted with at least one halogen atom;
- 10
- 15
- R_1 or R_2 may optionally be engaged in a heterocycle containing the nitrogen atom and one of the carbon atoms of the phenyl group bearing the said nitrogen atom;
- 20
- R_3 and R_4 , which may be identical or different, represent a hydrogen atom or an alkyl radical containing 1 to 4 carbon atoms;
- 25
- R_5 , which may be identical or different, represent a hydrogen atom, a halogen atom or a linear or branched

alkyl radical containing 1 to 4 carbon atoms,
optionally interrupted with at least one hetero atom;
R₆, which may be identical or different, represent a
hydrogen atom; a halogen atom; a linear or branched

5 alkyl radical containing 1 to 4 carbon atoms,
optionally substituted and/or interrupted with at least
one hetero atom and/or group bearing at least one
hetero atom and/or substituted with at least one
halogen atom;

10 X represents:

- a linear or branched alkyl radical containing
1 to 14 carbon atoms or an alkenyl radical
containing 2 to 14 carbon atoms, optionally
interrupted and/or substituted with at least
15 one hetero atom and/or group containing at
least one hetero atom and/or substituted with
at least one halogen atom;
- a 5- or 6-membered heterocyclic radical
optionally substituted with at least one
20 linear or branched alkyl radical containing 1
to 14 carbon atoms, optionally substituted
with at least one hetero atom; with at least
one linear or branched aminoalkyl radical
containing 1 to 4 carbon atoms, optionally
25 substituted with at least one hetero atom;
with at least one halogen atom;
- a fused or non-fused aromatic or diaromatic
radical, optionally separated by an alkyl

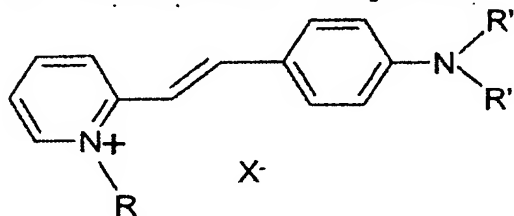
radical containing 1 to 4 carbon atoms, the aryl radical(s) optionally being substituted with at least one halogen atom or with at least one alkyl radical containing 1 to 10 carbon atoms optionally substituted and/or interrupted with at least one hetero atom and/or group bearing at least one hetero atom;

- a dicarbonyl radical;
- the group X possibly bearing one or more cationic charges;

a being equal to 0 or 1;

Y^- , which may be identical or different, representing an organic or inorganic anion;

- 15 n being an integer at least equal to 2 and at most equal to the number of cationic charges present in the fluorescent compound;



(F4)

in which formula R represents a methyl or ethyl radical; R' represents a methyl radical and X^- represents an anion of chloride, iodide, sulphate, methosulphate, acetate or perchlorate type.

26. Use according to any one of Claims 22 to 25, characterized in that the keratin materials are artificially dyed or pigmented keratin fibres, in

particular the hair, or coloured skin.

27. Use according to Claim 26, characterized in that the hair has a tone height of less than or equal to 6 and preferably less than or equal to 4.